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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,569

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EXAMINER

GISSEL, GUNNAR J

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2856

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,569	<b>Applicant(s)</b> BIRKHOFFER ET AL.	
	<b>Examiner</b> Gunnar J. Gissel	<b>Art Unit</b> 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 06 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/11/2006 1/6/2006</u> .                                      | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 15, 16, 18, 19, 25, 26, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,635,161 to Hiroshi Inagaki (Inagaki).

Regarding Claims 15 and 29, Inagaki discloses a gas sensor for detecting a gas component in the exhaust gas of an internal combustion engine, comprising: a control and evaluation unit (Inagaki, control units 56, 57), and a sensor unit with an electrode structure (Inagaki, electrodes 20, 19, 15), a first terminal, and a second terminal, wherein an electrical measured value present between the first terminal and the second terminal of the electrode structure is adapted to be supplied to the control and evaluation unit to determine the concentration of the gas component (Inagaki, column 3, lines 1-5, 15-20), wherein the control and evaluation unit applies a bias voltage to at least one of the first terminal and the second terminal of the electrode structure (Inagaki, control and evaluation unit 56; column 12, lines 60-67), wherein the bias voltage has a level which is settable in dependence on at least one of a characteristic of the sensor and a loading of the sensor in such a way that sensor behavior with long-term stability is achieved over the operating time (Inagaki, column 14, lines 55-65).

Regarding Claim 16, Inagaki discloses the level of the bias voltage can be set in dependence on a reference value of the measured value (Inagaki, column 12, lines 60-67).

Regarding Claim 18, Inagaki discloses the level of the bias voltage can be set in dependence on an electrical reference variable that can be measured between the electrode structure of the sensor unit and a circuit of the gas sensor (Inagaki, column 12, lines 60-67).

Regarding Claim 19, Inagaki discloses a circuit for temperature measurement covered by an insulating layer, wherein the sensor unit is applied to the insulating layer, and wherein it is possible for the level of the bias voltage to be set in dependence on an electrical reference variable measurable between the electrode structure of the sensor unit and the circuit for temperature measurement (Inagaki, control and evaluation unit 56; column 12, lines 60-67).

Regarding Claim 25, Inagaki discloses the level of the bias voltage can be set in dependence on an electrical reference variable that can be measured between the electrode structure of the sensor unit and a circuit of the gas sensor (Inagaki, control and evaluation unit 56; column 12, lines 60-67).

Regarding Claim 26, Inagaki discloses the level of the bias voltage can be set in dependence on an electrical reference variable that can be measured between the electrode structure of the sensor unit and a circuit of the gas sensor (Inagaki, control and evaluation unit 56; column 12, lines 60-67).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2856

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki with teachings from US Patent 5,235,267 to Uwe Schoneberg et al. (Schoneberg).

Regarding Claims 17, 24 and 31 Inagaki discloses a sensor, but does not explicitly disclose that the bias voltage can be set in dependence on a sensitivity of the sensor unit.

Schoneberg discloses the level of the bias voltage can be set in dependence on a sensitivity of the sensor unit (Schoneberg, column 5, lines 15-20).

It would have been obvious to one of ordinary skill to combine Inagaki with teachings from Schoneberg because Schoneberg improves the signal to noise ratio for the predetermined sensing region (Schoneberg, column 2, lines 50-55)

4. Claims 20, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki with teachings from US Patent 5,448,905 to Joseph Stetter et al. (Stetter).

Regarding Claims 20, 32, and 33, Inagaki discloses a sensor, but does not explicitly disclose that the bias voltage can be set in dependence on the operating time of the gas sensor.

Stetter discloses the level of the bias voltage can be set in dependence on the operating time of the gas sensor (Stetter, column 6, lines 52-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Inagaki with teachings from Stetter because Stetter's technique's improve sensor lifetime and performance during said lifetime (Stetter, column 2, lines 55-58)

5. Claims 21, 27 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki with teachings from US Patent 6,054,859 to Yasuhiro Takashi et al. (Takahashi).

Regarding Claims 21, 27 and 34, Inagaki discloses a sensor, but does not explicitly disclose the bias voltage has a positive polarity in relation to an operating voltage.

Takahashi discloses the bias voltage has a positive polarity in relation to an operating voltage of a circuit of the exhaust gas sensor (Takahashi, column 8, lines 48-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Inagaki with teachings from Takahashi because Takahashi discloses a method of preventing the bias voltage from discharging to the ignition coil, which decreases sensitivity (column 2, lines 15-25).

6. Claims 22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki with teachings from US Patent 5,635,136 to William Glaunsinger et al. (Glaunsinger).

7. Regarding Claims 22 and 28, Inagaki discloses a sensor, but does not explicitly disclose that the gas component is sensed is ammonia.

Glaunsinger discloses a sensor wherein the gas component sensed is ammonia (Glaunsinger, column 9, lines 30-35).

It would have been obvious to one of ordinary skill to combine Inagaki with teachings from Glaunsinger because the detection of combustible gases is critical to

Art Unit: 2856

human existence (column 1, lines 63-66) and Glaunsinger's sensor offers long term stability (column 1, lines 20-26).

8. Claims 23 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki with teachings from 5,768,937 to Abdul Wajid et al (Wajid).

Inagaki discloses a sensor, but does not explicitly disclose that the stability is stability with respect to at least one of a zero point signal and sensitivity.

Wajid discloses said stability is stability with respect to at least one of a zero-point signal and sensitivity (Wajid, column 2, lines 15-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Inagaki with teachings from Wajid because a parasitic signal can be dominant over the signal, distorting the stability (Wajid, column 2, lines 15-25).

9. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki with teachings from US Patent 4,356,150 to Robert Johnson et al (Johnson).

Inagaki discloses a sensor, but does not explicitly disclose that the bias voltage is set in dependence on a zero-point drift of the electrical measured variable.

Johnson discloses the level of the bias voltage is set in dependence on a zero-point drift of the electrical measured variable (Johnson, column 1, lines 20-22).

It would have been obvious to one of ordinary skill in the art at the time of the rejection to apply the teachings of Johnson to Inagaki because minimizing the bias voltage based on the zero-point drift minimizes contamination of the sensor (Johnson, column 1, lines 15-22).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunnar J. Gissel whose telephone number is (571)274-3411. The examiner can normally be reached on Mon-Fri, 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571)272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GJG/

7/9/2008

/Hezron Williams/

Supervisory Patent Examiner, Art Unit 2856